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SKETCH OF THE PROPOSED LINE  
OF  
OVERLAND RAILROAD  
THROUGH  
BRITISH NORTH AMERICA.

BY  
ALFRED WADDINGTON

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"WHERE THERE'S A WILL THERE'S A WAY."

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*[Second Edition, with Corrections.]*

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1871.

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## PREFACE TO THE FIRST EDITION.

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IN my pamphlet of September last, on a proposed "Overland Route through British North America," I merely showed the general practicability of such a route, without entering into details which would have been tiresome to the general reader. The pamphlet has had a wider circulation than I expected; and as doubts have been raised on several points, more especially as regards the direct line of railroad to the north of Lake Superior, my friends have urged me to answer them. This I cannot do better than by the following more detailed description of the road, which will serve as a supplement to the pamphlet. With the few elements at my disposal, such an abridged sketch must necessarily be very imperfect, if not occasionally incorrect; but it is the first attempt yet published, and as such, will, I trust, be found useful by those who take an interest in this grand scheme, and their number is daily increasing.

The discovery of a practicable route through the mountains of British Columbia was naturally the first step towards opening an Overland communication. I have already explained how that difficulty was overcome; and now that the Hudson's Bay Company have accepted the proposal made to them by Lord Granville for the surrender of the North-West Territory, another obstacle, hitherto considered as next to insurmountable, has also been removed. The speedy accomplishment of this important measure, owing chiefly to the untiring efforts of the Canadian Delegates, and the good sense and energy of Lord Granville, can but encourage the writer to fresh perseverance in his efforts. The difficulties still to be grappled with are great, it is true, but the worst, it is believed, have now been surmounted. The future of the Dominion, the development of its great resources, and the consolidation of its power depend on the opening up of a communication between Canada and the Pacific through the Red River Settlement and the Fertile Belt. These will therefore now be quickly thrown open; the general confederation of British North America will naturally follow; and the lately so-called *impossible* project of an Overland Railroad (which, when accomplished, will make Canada the emporium of the trade of Europe with China and Japan) may be looked upon ere long as a simple question of pounds, shillings, and pence. I am aware that the sum required (thirty-two millions, including interest till the road becomes self-paying) appears at first sight something enormous; but the appli-

cations to Parliament this Session for Bills relating to railroads in the United Kingdom alone (where any new line of railroad seems almost impossible) amount to more than sixteen millions, or over half that sum, with the chance of much smaller returns. With the enlightened assistance of the Canadian Government by liberal grants of land, and a properly guarded system of guarantee, by means of which the credit of the Dominion might in the first instance be made available—especially if endorsed by the Home Government—subscription lists to the above amount could be easily covered. The Government guarantees in India amounted, April 1st, 1867, to a much larger sum £67,251,802, and they have been a complete success, as everybody in financial circles is aware of. Besides, by providing for the payment of the interest, the above guarantee would be rendered almost nominal.\*

The Central Pacific Railroad across the American Continent has just been opened. Its professed purpose is to transfer the trade of the Old to the New World; and when the commercial fate of England is trembling in the balance, the urgent necessity of a rival route of our own, independent of foreign regulations or tariffs, can no longer be disguised, or the question lightly postponed. What the writer has so long been striving to forward will soon become the question of the day; and if, as some pretend, Englishmen can only act vigorously when fairly aroused, that day may not be far distant—when we shall set to work in good earnest to carry out this truly great and national undertaking and make up for lost time.

ALFRED WADDINGTON.

*Tavistock Hotel, Covent Garden,  
May 25th, 1869.*

\* For further details as to the probable traffic and returns of the proposed railroad, see "Overland Route through British North America," by the writer. Longmans and Co., Paternoster Row, 1868. Price One Shilling, with Colored Map, and at Durie & Son's, Ottawa.

## PREFACE TO THE SECOND EDITION.

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THE first edition of this little pamphlet contained the only then complete and well-grounded description of the proposed line of communication between Canada and the Pacific, combining all the previously existing data I had been able to collect, with my own information. It is, therefore, not astonishing, that in spite of its shortcomings, the demand for it should have been continually on the increase, at a time when the public naturally feel so much interest in this great undertaking. The first edition having been exhausted some time since, I have been induced, at the repeated request of my friends, to issue a new one, and I have endeavored to render it as complete as the present state of our information would permit. In making the corrections and additions, I have been enabled, by the kindness of Mr. A. J. Russell, C.E., Inspector of Crown Timber Licenses, to consult the very complete survey of the Montreal Valley, made by Col. A. G. Forrest, in 1867, and I have profited by the explorations of Professor Bell, of Mr. G. F. Austin, P.L.S., and my own, at Neepigon Bay. The explorations of Mr. L. Russell, P.L.S., in the neighborhood of the height of land west of Neepigon Lake, have also afforded me considerable information, as well as in a less degree those of the exploring party under Mr. Fleming, to the north of Lake Superior. An original notice at the end concerning the proposed extension of the railroad to Vancouver Island, is accompanied by an approximate calculation of the distances and expense.

ALFRED WADDINGTON.

Russell House, Ottawa, July 6th, 1871.

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SKETCH OF THE  
PROPOSED LINE OF OVERLAND RAILROAD  
THROUGH  
BRITISH NORTH AMERICA,

*From Ottawa to Fort Garry, and thence to the Yellow Head Pass  
and Bute Inlet.*

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"WHERE THERE'S A WILL THERE'S A WAY."

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OTTAWA TO FORT GARRY.

MILES.

A LINE of railroad from Ottawa to Fort Garry must necessarily be drawn so as to avoid the mountainous region extending from 20 to 30 miles north of Lake Superior, which is altogether unsuitable for a railroad; and as the valley of the Ottawa offers a nearly straight line and every facility for this purpose, it will naturally be the one followed. It is proposed to start the "Overland, or Canada Pacific Railroad," from near the junction of the Mattawan, 437 ft. above the sea, and about at an equal distance from Toronto and Ottawa. The connecting road from Ottawa to that point would run by Arnprior, on the Madawaska, to Sandpoint, the present terminus of the Brockville and Ottawa railway, six or seven miles beyond; and then, crossing Bonnechere river, to Pembroke, the proposed future terminus, some 40 miles further on, and 100 miles from Ottawa. A little above Pembroke the road would cross Indian river, and 10 miles further on the Petowawa, rather a large stream. The ground, however, along the Ottawa from Pembroke to the Mattawan river, though favorable, is generally poor; and better land for settlement would be traversed, without any great inconvenience, by taking the line more to the west. The distance from Pembroke to the mouth of the Mattawan would be 95 miles.

From the mouth of the Mattawan, or in that neighborhood, the "Canada Pacific Railroad" would continue to follow the west side of the Ottawa, or perhaps a small collateral tributary called the Antoine, in a straight line, till within about 10 miles from the mouth of the Montreal river. Here the immediate bank of



the Ottawa, or rather of its expansion into Lake Temiscaming, could not be followed, and the road would have to pass behind the hills which border the lake. Distance to opposite the mouth of the Montreal river in lat.  $47^{\circ} 07'$ , long.  $79^{\circ} 26'$

70

Thence the road would join the west side of Montreal river about three miles above its mouth, and run with an unusually straight course over an undulating soil, chiefly of loamy clay, with hills rising gradually to 300ft. above the river, for 24 miles, when it would cross it in order to avoid a short elbow to the west, and several large tributaries beyond. The river is here about 250 feet wide by 7 or 8 feet deep. From this point the road would continue on the east side, in a nearly straight line, through a level, fertile plain 30 or 40 feet above the river, and from three to five miles wide, for 45 miles, till it reached the head of Elk Lake, having only traversed one small tributary 12 feet wide. Here the soil changes and becomes poor and sandy, but the same level continues over which the road would pass, crossing one other insignificant tributary (all the main streams being on the west side) for 30 miles, till it reached the head of a small lake at the north angle or elbow of the Montreal, situated on the divide or watershed of the Laurentides, in lat.  $48^{\circ}$ , some 830 feet above the sea. Total distance along the Montreal river, of which 69 miles are very favorable for settlement

99

N.B.—The whole of the valley of the Montreal was surveyed in 1867 by A. G. Forrest, to a scale of half a mile to the inch, with side explorations stretching three to four miles and more backwards.

From this point the road would enter on the level clay country, that extends north towards Hudson's Bay, and for several hundred miles west, to the Laurentian height of land between Lake Superior and Lake Winnipeg. This vast extent of slightly rolling, entirely arable land, of a clayey, stubborn nature, but found to be capable of improvement and productive, since wheat is successfully grown at New Brunswick House, in lat.  $49^{\circ} 08'$ , 45 miles north of the proposed line, whilst the line of limit to wheat cultivation runs still further north, offers a more favorable line for the construction of a railroad, and at the same time a country more fit for settlement than that to the south, which lies in the Laurentian formation, and is extremely mountainous, broken and rocky. Besides, the difference between the straight line from Ottawa to Neepigon Harbor and the slight curve to the north by Montreal river and through the great clay level would not be over 18 miles. The road would, therefore, now be carried a little to the north of the direct line, and within the margin of the level clay country 12 to 20 miles north of lat.  $48^{\circ}$ , as ascertained by Mr. Sinclair and afterwards

by Mr. Salter, for upwards of 100 miles westward, and indefinitely beyond.

Beginning with a W.N.W. course along its southern limit and crossing the Waratowaha or south branch of the Abbitibbi at the end of about 20 miles, it would reach lon.  $83^{\circ}$  near the head of Carp Lake on the south or middle branch of Moose River; 90 miles north of its source, whence it flows towards Hudson's Bay, and about 60 miles north of the termination of the line surveyed by D. Sinclair in 1867. Distance with the sinuosities.\*

From Carp Lake the road would continue W.N.W. through a country comparatively level to the north end of Minisabe Lake, (long.  $83^{\circ}50'$ ) on the west branch of Moose River,† and here we enter on the country explored last summer by Mr. Fleming. According to his report, the watershed, which runs about 45 miles back from Lake Superior, presents an immense plain stretching out on all sides, with a good natural drainage and rich lands capable of sustaining a very large population. From Minisabe Lake the road would, therefore, pass along this watershed and some 12 miles to the south of Cross Lake, to the  $85^{\text{th}}$  Meridian, a little north of  $49^{\circ}$  lat.; whence the road would run W.N.W. to  $86^{\circ}$  long. The absence of further details must be attributed to the little knowledge we have of the country until the above report is published. Total distance, allowing for sinuosities

The road will now have re-entered the basin of the St. Lawrence, (the country becoming more difficult and undulating) and continuing a W.N.W. course for about 14 miles, cross first a branch of the Pie river, and then the river itself flowing through a rich valley from one to three miles wide towards Lake Superior.

Between Pie River and Long Lake, in long.  $87^{\circ}$ , we have no reliable details. Long Lake is from half a mile to three miles wide, and stretches 50 miles north. It forms a branch of the Albany, which flows into Hudson's Bay and takes its rise in Owl Lake, only six miles from Lake Superior. The road would cross this lake at one of its narrows, which are little more than a stone-throw wide, somewhere about lat.  $49^{\circ}18'$  or 45 miles north of Lake Superior. Distance from Pie River

The line would now run south of west in the direction of Neepon Bay to  $87^{\circ}55'$  west long., lat.  $49^{\circ}15'$ ; the whole over rocky, undulating ground, but with some intervening valleys of good soil. In the course of this distance it would cross the

Miles.... 480

\* Most of the foregoing details are taken from Alex. Russell's valuable work on the Hudson's Bay Territories.

† The latitudes and longitudes must here be considered as approximate.

	MILES.
Over....	480
Pays plat, Gravel and Cypress rivers, all rapid and inconsiderable streams falling into Lake Superior. Distance	52
Here the road would reach the northern extremity of a high range of trap-rock hills running south-east towards Lake Superior, and forming an obtuse angle, would turn some 35° S. of W., and enter on good, undulating, wooded land; crossing a small stream called the Jackfish at the end of 13 miles, and having a range of granite and trap-rock hills, 800 to 1,000 feet high to the north, between the proposed line and Lake Neepigon. It would then continue through a still more level tract of good loamy soil for about 13 miles more to the Neepigon. This is the largest river on the north shore of Lake Superior, into which it empties itself through the range of mountains bordering the lake; and which are here chiefly composed of amygdaloid rocks and porphyry, containing valuable copper ore in many places. Distance	26
Neepigon river would be crossed at the rapid immediately above the harbor, and at an elevation probably of not more than 60 feet above Lake Superior, itself 600 feet above the sea. From this point a branch line, two miles long, to Neepigon harbor, would put the railroad in direct communication with Lake Superior. Apart from the very important accession of traffic, which this would procure to the projected line, the advantages, in a public point of view, of uniting the great steamboat routes of Lake Superior and the Saskatchewan with Ottawa uninterruptedly all the year round, are self-evident, and very superior to those of any proposed line of railroad from Thunder Bay; which would not only be isolated during the winter, but in order to avoid the Lake of the Woods, must either pass through American territory, or, after coming within 25 miles of the proposed Overland route at the Lac des mille Lacs, have to make a detour of 100 miles or more to the north, from somewhere near Rainy Lake, in order, after all to fall into it north of Whitefish Bay. A railway, subject to such disadvantages, would be of little or no use, and quite unavailable as a link in the great Overland communication with the West. Distance	2
From Neepigon river the road would run for 14 miles W.N.W. over a good tract of land to Black Sturgeon, river lying in a valley composed of excellent soil, and from three to six miles wide. This river would be crossed in lat. 49° 04', long. 88° 40', after which the road would run up the west side of the valley for about 8 miles, when it would pass over into that of the western branch or Little Sturgeon, and after following it for 16 miles, cross it in the neighborhood of a brine spring in long. 89° 14'. Lake Neepigon is 340 feet above Lake Superior, and stretches 70 miles north by about 40 wide. Total distance	38
Miles....	598

MILES.  
480

THROUGH BRITISH NORTH AMERICA.

11  
MILES.

Over.... 598

52

So far the whole line of country traversed after leaving Ottawa is relatively level, and the variations of altitude unimportant; but the road has now to cross the height of land which separates Lake Superior from Lake Winnipeg. Of this, again, little is known, excepting from Mr. Russell's late exploration. To the north the rocks are chiefly granite and gneiss, forming rounded summits or oblong eminences of little altitude, but, further south, where the railroad would pass, is an elevated, arid, sandy plateau, covered with stunted timber, but offering no obstacle for the construction of a railroad.

26

Proceeding from the crossing of the Little Sturgeon some 15° N. of W., the road would begin to rise along the side of the valley, the surface soil overlying a soft, red, steatitic rock. Then, passing over a tract of rolling, rich, clayey soil, it would follow a straight line slightly north of west for 35 miles to the north end of Lac des Isles, and thence crossing a small tributary of Gull river, running north, and the head of Muskeg river running south, reach the divide or watershed some 5 miles south of Waonga Lake in long. 90° 40'. Total distance

80

The height of land here is 542 feet above Lake Neepigon, or 1,486 feet above the sea, and assuming the height at the foot of the ascent to be 686 feet, the rise would be 800 feet in 80 miles, or, on an average, 10 feet to the mile, but, of course, much greater in particular places. It may be observed here that Sturgeon Lake and, probably Lac Seul, together with a portion of English river, are placed on the maps fully 30 miles further south than they ought to be.

The road would now take a W.N.W. direction towards the north end of Whitefish Bay, crossing at the end of about 15 miles a small tortuous affluent from the south, which runs into Sturgeon Lake, and continue some 20 miles further on, to within two or three miles south of a small lake called Pine Lake. Total distance

35

2

From this point, where Mr. Russell's exploration ended, we have no precise details, excepting that about 20 miles further on, the road would cross Canoe river, an affluent of Lac Seul, on the Canoe route from Fort Francis, and that from Lac Seul the ground is generally considered to be lower, and though embarrassed with numerous lakes, to present no important obstacle. From Canoe river the distance in a straight line N. of W. to the north end of White Fish Bay, 978 feet above the sea, would be 90 miles. Total distance

110

Crossing an affluent from the North, the road would follow the north-western side of this bay for some distance, and then strike nearly due west over a broken sterile tract of country to the Winnipeg. This river, which is of large volume, about

38

.598

	MILES.
Over . . .	823
equal to the Rhine, would be crossed at the "Dalles," 958 feet above the sea, where its width would only be about 150 yards, and the escarpments on both sides 30 to 40 feet high. Distance	48
From the Dalles the road would pass a little N. of W. over easier ground to the foot of Falcon Lake on Labarrière river	24
It would then run in a straight line due west to Fort Garry, passing a little to the south of the Fork of White Mouth river. About five miles beyond this, or 38 miles from Labarrière river, the road would leave the Lawrentides and enter on the Silurian formation, which extends to Fort Garry, and forms here the beginning of the great plain which stretches westward as far as the Rocky Mountains. It would now run over unusually level and favorable ground for 52 miles; passing over several small branches of the Broken Head, and, finally, across Red River, 200 to 250 yards wide, at Point Douglas near St. Boniface, a mile below the confluence of the Assiniboine, and near the mouth of a streamlet called German Creek, 50 feet wide. The river could be crossed more easily at the Rapids, 3 miles south of the Stone Fort, and 15 miles lower down, but it is doubtful whether this would be a better line of road. Distance in all,	90
Total distance from the Mattawan	Miles 985
And from Ottawa	,, 1,180

### PLAIN OF THE SASKATCHEWAN.

The railroad, as before said, will now have entered on the Great Plain, which, further west, takes the name of the Saskatchewan; passing through Fort Garry and the Fertile Belt in its whole length, to the foot of the Leather or Yellow Head Pass (lat.  $53^{\circ} 12'$ ) in the Rocky Mountains. This plain rises in successive benches, gradually but almost imperceptibly, from Fort Garry (647 feet above the sea) to the foot of the Rocky Mountains, where it attains a height of over 3,000 feet; notwithstanding which, wheat is successfully grown at Fort Edmonton in lat.  $53^{\circ} 32'$ , 2,728 feet above the sea. It presents the easiest ground in the world for the construction of a railway, and, therefore, only requires a general indication of the line the proposed road would follow.

Starting from between Fort Garry and the town, this would be through the Red River Settlement; first, nearly due west for 6 miles along the north side of the Assiniboine to Sturgeon Creek; then slightly N. of W. for 5 miles, and afterwards N. W. over another small creek to Lane's Post, 10 miles, and to Long Lake 8 miles beyond; the whole over level, open, and beautiful prairie ground. From Long Lake the road would follow the Assiniboine in a south-westerly direction for 26 miles more, to the

MILES.

MILES.

village at "Prairie Portage" forming the western boundary of the settlement, in long.  $97^{\circ} 35'$ , lat.  $50^{\circ} 10' N$ . The whole of this portion of road from Fort Garry lies in the Devonian formation. Total distance

A straight line from Prairie Portage to the foot of the Yellow Head Pass, a few miles N. of Jasper's House, would carry the road along the border of the more arid and treeless plains towards the south, instead of passing through the middle of the "true prairie land" called the Fertile Belt. In order to do this, the road would have to follow a west-north-westerly course (which would not lengthen it materially) to the mouth of a small tributary of Rapid river, at the foot of the Riding Mountains, in long.  $99^{\circ} 45'$ , lat.  $50^{\circ} 30'$ ; and thence run a degree or two more to the north in a straight line to the North Saskatchewan, some 18 miles above the bend, and near the confluence of a small affluent from the Eagle Hills, in long.  $107^{\circ} 15'$ . The railroad would thus connect with that noble stream, near the middle of its course, and consequently with the vast tracts of country which it traverses, both above and below; at the same time that it would open up the very richest ground on this side of the Assiniboine, and run nearly the whole way through the Fertile Belt beyond.

Following this line from Prairie Portage, the road would cross at the end of five miles a small stream, called Rat river, running in a valley six to seven miles wide, north to Lake Manitoba. It would then run W. N. W. up the valley of White Mud river, through a country of prairie lands of the richest description, thickly interspersed with woods, to a tributary in long.  $98^{\circ} 40'$ , where the valley takes a more westerly direction; and crossing the river, continue due west over several insignificant streams from the southern foot of the Riding Mountains, to the N. E. elbow of Rapid river in long.  $99^{\circ} 30'$ ; a stream about 50 feet wide, which here turns abruptly to the S. W. A little before reaching this, the road will have left the Devonian and entered on the Cretaceous formation, which (more or less covered with superficial deposits), extends to the foot of the Rocky Mountains. Crossing Rapid river near the Bend, the road would then follow the south side of the valley, half a mile to a mile wide and 80 feet below the general level, for about 12 miles to the tributary below mentioned in long.  $99^{\circ} 45'$ , where the line changes direction. Distance from Prairie Portage

Turning very slightly northward, the road would continue to follow the rich fertile valley of Rapid river in a line nearly parallel to the Riding Mountains, for about 30 miles more, and then cross the head of Oak river, 10 miles further on. After this, it would cross consecutively two branches of Arrow river, and the sources of Pine Creek, Bird-tail Creek, and another; all

	MILES.
Over . . .	155
rising in the Riding Mountains, a fertile table land, about 1,000 feet above the plain and thickly wooded to the north-east. It would then cross Shell river, flowing from a valley further north, and distant about 40 miles from Oak river; then, another affluent of the Assiniboine, and finally cross the latter in lat. $51^{\circ}$ half way between Fort Ellice and Fort Pelly. Total distance, through a country composed of a rich, sandy loam, sinuosities included	95
The Assiniboine flows here in a valley about a mile wide, 150 feet below the plain. Leaving the valley, the road would enter on a rich, park-like country, similar to that previously traversed, interspersed with small lakes, and partially wooded; and crossing the head of a tributary of Calling river, reach at the end of about 40 miles a small stream flowing to the north, called Little White Sand river, three or four miles to the north of Leech Lake on the Big Cut Arm, which runs south. The road would then continue for about 35 miles more to the S. E. foot of the Little Touchwood Hills. Total distance, allowing for sinuosities,	75
The tract of country embraced by the Little and the Great Touchwood Hills, which are about 20 miles apart, is of the best quality, rich, fertile, well wooded and watered; coal is also said to be found in abundance. The road would pass over the first 34 miles to a point 8 miles north of the deserted Fort, at the N. W. foot of the Great Touchwood Hills, in lat. $51^{\circ} 33'$ , long. $104^{\circ} 20'$ , and thence cross to the north-west side, about 16 miles distant, where a tributary at the foot of Heart Hill runs S. W. towards Last Mountain Lake on Calling river. In all	50
The road now enters again on the plain, composed here in some places of a lighter inferior soil; and crossing at the end of twenty miles a second tributary to Last Mountain Lake, would re-enter the "true prairie land" near the S. W. end of a Lake in long. $106^{\circ} 03'$ , lat. $51^{\circ} 58'$ . Distance	58
Thence it would continue for about 22 miles to the South Saskatchewan, 180 to 200 yards wide, and 10 to 14 feet deep, flowing in a deep-cut valley, the sides of which are steep and wooded, 230 feet below the plain. This it would cross, in lat. $52^{\circ} 08'$ , some 35 miles below the Moose Woods and the Half-breed settlement there, and proceed over rather poor soil to the North Branch, at the confluence of Eagle Hill Creek, a distance of about 35 miles. In all	57
The road might now follow a direct line to Fort Edmonton, so as to join the beaten track by the settlements of St. Alban and St. Ann, to Jasper's House and the Yellow Head Pass. But this would take it 50 miles to the north of the straight line, besides passing through a very marshy country; and that, without any adequate compensation; the more so, as a branch line to	

Over.... 490

Edmonton, if found desirable, would only be 35 miles long. A straight line from the north of the Eagle Hills to near Jasper's House would therefore be far preferable.

Following this direction, the road would run for the first 20 miles or more between the foot of the Eagle Hills and the Saskatchewan; and then in a straight line W. N. W. to the south bank of Battle river, near Ear Hill Creek in long.  $108^{\circ} 33'$ . Crossing the Creek, it would follow it a little S. of W., and then run for 30 miles along the south side of "The Chain of Lakes" to the end of Manito Lake, and along two smaller ones beyond; then south of Eyebrow Hill, where it would cross Eye Hill Creek in long.  $109^{\circ} 42'$ , and the foot of a lake on Nose Creek, in long.  $110^{\circ} 05'$ , a stream flowing north from the Neutral Hills. Twelve or fifteen miles further west it would reach Battle River again, and after following the south bank for six or seven miles over a broken country, partially wooded, cross it in long.  $110^{\circ} 40'$ , lat.  $52^{\circ} 45'$ . The road would now run north of the Dried Meat Hills, through a country rich, fertile, and clothed with luxuriant vegetation, to Long Lake Creek, a tributary of Battle river, which it would cross in long.  $112^{\circ} 50'$ , lat.  $52^{\circ} 57'$ . It would then run north of Beard Hill and across Smoking Wood Creek in long.  $113^{\circ} 37'$ ; north of the Woodpecker Hills, across Pigeon Lake Creek, and for several miles along the south side of this lake, where there is a Wesleyan Mission: the whole through a country of the richest description. Thence the road would strike to the south end of Bull Lake; on leaving which it would enter the line of "true forests" in long.  $114^{\circ} 05'$ , and pass through them for about 30 miles, to the North Saskatchewan. This it would cross about lat.  $53^{\circ} 08'$ , long.  $114^{\circ} 50'$ , a little below the rapids, 3,048 feet above the sea, and near its bend towards the East, about 6 miles below the mouth of Brazeau river; from which point downwards it is believed to be navigable for steamers. Total length from Eagle Hill Creek, allowing for sinuosities,

350

The road would then run due west over easy ground, but covered with dense pine forests, and cross the Pembina at the end of about 80 miles, and the McLeod 40 miles further on; two clear, shallow streams from the south, flowing over pebbly beds, about 80 feet below the plain. From the McLeod to the entrance of the Pass at the foot of the Rocky Mountains, a few miles north of the Roche à Miette, the country becomes gradually more and more rolling and hilly. Distance, allowing for sinuosities,

145

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Total distance from Fort Garry      Miles    985



## ROCKY MOUNTAINS.

The road now enters the Rocky Mountains, and turning south, passes for several miles between a small lake to the east, and the Athabasca, a stream 200 yards wide, swollen and turbid with glacier water, which rises in the Rocky Mountains, some 90 miles above, and runs here nearly due north at the bottom of a wide, flat valley. A little higher up, the river expands into two small lakes, the lower one bathing the foot of a perpendicular limestone (?) bluff forming part of the Roche à Miette, a singularly shaped mountain, 6,000 feet high from its base, or 9,400 feet above the sea. This bluff would require a cutting of a quarter of a mile or more in length. Immediately beyond, the road enters on a little sandy plain; opposite which, and in a lovely expanse extending some 5 miles on the left bank of the river, between the two lakes, lies Jasper's House, in long.  $118^{\circ} 10'$ , lat.  $53^{\circ} 12'$ , 3,372 feet above the sea. The road now crosses several fordable mouths of a stream from the south, and continues in a southerly direction for about 18 miles up the narrowing valley, along the right bank of the Athabasca, and over easy ground, requiring, at most, an occasional cutting or embankment. At this point it would probably cross the river, hardly as wide here as the Thames at Westminster Bridge, deep and tranquil; thus avoiding the "Maligne," a large tributary which enters the Athabasca lower down from the opposite side. The road would then follow a sparsely timbered flat on the left bank, for 7 or 8 miles, up to a small prairie, the site of an old Lodge, called Henry's House; when the track leaves the valley of the Athabasca, and the Pass properly speaking begins. Total distance

30

Turning abruptly to the W. N. W. (which direction the road will now follow with little variation for the next 55 miles, as far as the west end of Moose Lake) it would enter the rocky valley of the Miette, a deep, tortuous, rapid stream, 30 yards wide. The road would follow this valley for about 12 miles: and then crossing a small tributary called the Pipestone, pass over easy ground, rising gradually and imperceptibly, till it reached the summit of the Pass, 3,760 feet above the sea. The twistings of the Miette would require several bridges, or else considerable side cuttings, in order to avoid the stream; these, however, it is believed, would seldom reach the rock. After leaving the Miette the mountains diverge, and the valley opens. Distance from Henry's House

22

Miles..... 52

## BRITISH COLUMBIA.

The summit of the Yellow Head Pass forms the limit of British Columbia. It presents a comparatively open and level space for about 3 miles; after traversing which, the road would pass over easy ground along the north side of Cow-dung Lake, and at the foot of verdant, swelling hills; the lake consisting of two portions connected by a short narrow channel, and in all about 7 miles long. It would then follow the direction of the small stream issuing from the western extremity of the Lake for several miles, down to where the Fraser, flowing through a narrow gorge from the south-west, sweeps round into the valley. The road would run for the next four or five miles along the north side of this stream, between the river and the steep hill sides of the straitened valley, over level but low ground, subject to be overflowed and encumbered with fallen timber; till it reached Moose river, a rapid stream falling in from the north. Two or three miles below, the Fraser expands into Moose Lake, 12 to 15 miles long by 2 to 3 wide. The mountains on the south side of this lake rise perpendicularly to a height of 2,000 feet. On the north side, though less abrupt, they still come down in many places to the water's edge, and close in on the road, thus necessitating several miles of side cutting along the lake. The valley now begins to acquire a more rapid and continuous descent, and, changing direction, runs nearly due west for the next 30 miles. Four or five miles below Moose Lake, it opens somewhat, after which it is much encumbered by large timber, till the mountains close in once more, and the road between them and the Fraser is obstructed by lofty cliffs of crumbling slate rock, the first met with beyond the Summit. A side-cutting of about 200 yards would be necessary at this point, besides several other smaller ones lower down, where the mountains shut in the valley very closely. Four or five miles below this, or about 15 miles from Moose Lake, a considerable branch called the "Grand Fork" enters the Fraser at right angles from the north, through five separate mouths, which would have to be crossed. At this point the Fraser runs through a narrow rocky gorge: after which the valley, for the next 10 miles to opposite the Indian camp at the "Cache," becomes much more open, and the ground easier, though intersected by several streams from the north, and obstructed by fallen timber of great size. Total distance from the Summit to the Cache.

The latter half of this distance is heavily timbered, and the descent between Moose Lake and the Cache rapid and continuous, but nowhere steep; averaging less than 45 feet to the mile, and probably never exceeding 70. There would also be some con-

58

siderable side cuttings and embankments, but not a single tunnel in the whole length of the Pass.

The continuation of the road in a straight line to the Pacific is now interrupted by a barrier of mountains, beginning some five miles below the Cache, and running north and south. These present the most extraordinary accumulation of mountains behind mountains, as far as the eye can reach; whilst they arrest the course of the Fraser, which turns suddenly north. The possibility of carrying a road or telegraph over them in a straight line from the Cache to William's Creek, one of the principal centres of the Cariboo gold mines, about 80 miles distant and in nearly the same latitude, has been tested by two distinct lines of exploration. These were run from Richfield; the one diverging slightly towards the south, and following Swamp River up to its source, 5,828 feet above the sea, near which the Shouswap, the North Thompson, and the Canoe Rivers also take their rise; the other northward towards the "Grande Rapide" on the Fraser, a few miles below the Cache. The result was, that the road would not only pass over the point of greatest elevation, whence the above rivers flow north and south, but that it would have to cross three indescribably rugged mountain ridges, running perpendicular to the axis of the line, and separated by the narrowest valleys; one of them 6,444 feet above the sea, and all subject to continual avalanches. Features much the same as those accompanying Howse Pass to the south, and presenting an accumulation of obstacles which render any such line utterly impracticable.

The proposed railroad must therefore necessarily follow the valley of the Fraser to the North; or else take the line travelled by Milton and Cheadle down the Thompson to the South. But the latter, besides continuing for 120 miles below the Cache to run through a mountainous uninhabitable region, covered with dense forests, and being costly in proportion, would lead to nothing definite beyond the opening up of a small portion of the Colony; since, in spite of every effort, no really available line for a railroad between Fort Kamloops and New Westminster has as yet been discovered through the Cascade or Coast range.

The road down the valley of the Fraser, on the contrary, though describing a circuitous route, would turn the Cariboo or Gold Mountains, and communicate immediately, either below Westroad River, or lower down at Quesnel-Mouth, with the Chilcoaten or Great Western plain of the Colony; whilst below the Mouth of Bear river, the valley opens upon a fine tract of rolling country, with a climate considerably milder than that of Canada, and ready for immediate settlement; instead of the interminable mountains and forests on the Thompson route. The Fraser, moreover, (whatever may have been said or written

to the contrary), offers a valuable water communication, and one immediately available, through the whole of this cultivable district. Nor must it be forgotten that the gold diggings, together with the mining population, are constantly moving on towards the northern limit of the colony, and that this is the direct line of route to Peace River, and all the latest gold discoveries. This route, it is true, would require several considerable bridges; over the North Fork, the Salmon, the Stuart and Westroad rivers on the north side; or over Bear river, and twice over the Fraser, if carried along the south bank, besides some considerable gradings and cuttings; but it would nowhere present any very serious obstacle.

Following up this line, the road would run nearly due west for the first five miles below the Cache, over easy, open ground, along the right bank of the Fraser, which then turns nearly due north. Several miles below this, it would cross an important affluent from the east, called "Rock Creek," and reach the "Rapide des Fourneaux." In all about 10 miles

10

The river here takes a north-westerly direction. But in order to be able to continue a further description, it would be necessary to have a more complete survey of the valley, as regards the streams to be crossed, and the principal impediments on either side of the river; so as to know positively which bank the road should follow down to Fort George, and thence to Quesnel-Mouth. The distance from the "Rapide des Fourneaux" to the former place, in lat.  $53^{\circ} 55'$  long.  $122^{\circ} 40'$ , is 187 miles

187

From Fort George the road would run south along the valley of the Fraser to Quesnel-Mouth, a small rising town on the road to the gold mines, a few miles below which there are outcroppings of coal (probably lignite) on the Fraser. Distance, sinuosities included

93

From this place, or the opposite bank, it would then cross the rich Chilcoaten plain in a south-westerly direction, and nearly in its greatest breadth; crossing Deserter's river, and passing by William's Lake, to Chisieut Lake, on the Chiscoe or Chilcoaten, a small river, from 12 to 15 yards wide; then by Benchee Lake, in long.  $124^{\circ} 05'$ , lat.  $52^{\circ} 13'$ , across a small tributary of the Chilcoaten called "the Chilanco," 8 to 10 yards wide, and along the west side of Tatla Lake, 19 miles long, to the "Gap," or head of the Bute Inlet valley, (long.  $124^{\circ} 30'$ , lat.  $51^{\circ} 47'$ ) at the entrance of the Cascade Mountains or Coast range. This slightly rolling, fertile plain offers every facility for a railway. Distance across it  $137\frac{1}{2}$  miles. Thence the road would run down the valley, for  $84\frac{1}{2}$  miles, to Waddington Harbor at the head of the Inlet. Near the entrance of this valley from the plain, a granite bluff on the uppermost lake, called Bluff

MILES.  
Over..... 348

Lake, would require some blasting. Below this, the road would run over level ground for nearly 40 miles, the valley presenting no kind of difficulty, till the mountains begin to close in; requiring in the next eight miles four short tunnels, and considerable blasting in several places. The road would then reach the defile or canyon, 31 miles above the head of the Inlet. This defile is exactly  $1\frac{1}{4}$  mile in length, and would require two tunnels of 250 and 665 yards respectively, both in the granite, besides considerable blasting. Below the defile the valley opens again, and continues perfectly level down to the Inlet; the only difficulty being at the crossing of the Homatheo, a considerable stream, a mile below the defile, which would require a bridge 60 to 70 yards long. With the exception of the latter obstacles, which would be expensive, the whole line, from Quesnel-Mouth to Bute Inlet, may be said to offer one continuous level, and to be unusually favorable. It has been carefully surveyed, a map constructed containing the features of the ground, the curves, and other necessary details, to a scale of four inches to the mile, the outlay carefully calculated, and the whole revised and approved by competent engineers. Distance from Quesnel-Mouth to Waddington Harbor

222

Distance by this line

Miles 570

The above road is the only one to the Pacific, through the mountains of British Columbia, which years of exploration have proved to be really practicable. It cannot be denied, however, that, in view of an overland railroad, the circuit described by the valley of the Fraser as far north as lat.  $54^{\circ} 45'$  is immense, as compared with a straight line from the Cache to Quesnel-Mouth, both of them in the same latitude—220 miles against 120. So much so, that a shorter line was suggested by the writer, as far back as June, 1867, which, though traversing a greater extent of mountainous country, would, if found to be practicable, alike open the Chilcoaten plain, and pass over a tract of agricultural country equal to that by the Fraser; at the same time that it would be more central as regards the southern portion of the colony. This line would follow a portion of Milton and Cheadle's track,\* but only to a point some 20 or 25 miles below the Forks, where the Upper Thompson falls into the North Thompson from the N.E.; so as to cross the Bald or Gold Mountains, about lat.  $52^{\circ} 10'$ , 40 to 50 miles south of their point of greatest elevation, and, consequently, at a much lower level, and reach Horsefly Lake, beyond; whence the line would continue west to the "Gap," or entrance of the Bute Inlet Valley.

\* I am kindly indebted to these gentlemen for a portion of the following, and some of the preceding details.

Carrying out this idea, the distance from the summit of the Yellow Head Pass to opposite the Cache is 58 miles 58

The road would then cross the Fraser, which is here very impetuous, to the Cache, situated in a valley about five miles wide at its base on the river, and running to a point 15 miles south. Part of this valley is rich and fit for settlement, but the southern end is sandy and undulating. The road would pass up it over easy ground, cross Cranberry river, a small tributary flowing north to the Fraser, then skirting a small lake, imperceptibly pass the watershed between the Fraser and the Columbia. The valley is divided here by a line of hills to the south, and forks into two narrow valleys. Taking the more westerly one, the road would follow it for a mile or so, leaving the mountains to the east, and reach Canoe river, a rapid stream flowing from the N.W. at the foot of a steep, sandy cliff. Distance 17

Crossing Canoe river, the road, after running a mile or two S.W. would make a detour of a couple of miles to the west, in order to get round the point of a range of hills to the south; and passing among rocks and burnt timber enter a narrow valley to the west of them, drained by a small stream running north. This it would follow up, rising imperceptibly for 8 or 10 miles, to a little marshy lake, called Albreda Lake, occupying the bottom of the valley, and forming the watershed (2,900 feet above the sea) between Canoe river and the North Thompson. Following the stream from this lake, the road would continue south for about 18 miles along a valley closely shut in by steep, pine clad hills, with snowy limestone mountains in the rear, and over undulating hilly ground, requiring a certain amount of grading; the timber becoming of a very large growth, and the stream gradually increasing by the contribution of six or eight tributaries from the west (one of them rather a large one) to a width of 30 yards; till it joins the Upper Thompson, the first mouth of which (for there are two with an island between) is about 60 yards wide, flowing from the N.W., and charged with glacier water. Distance from Canoe river 32

The rise of ground between the latter and the Thompson is trifling, and so far the projected Short Cut presents no very serious obstacle. But at this point, the aspect of the elevated ridges to the west of the Thompson is such, as to preclude any reasonable hope of being able to carry a road over them to above Clearwater Lake, and again over the divide between the latter and Great Quesnelle Lake.

The road would therefore have to be continued further south, down the west bank of the Thompson, along steep, timber-strewn hill-sides; the forest as dense as ever, and the mountains coming down close to the water's edge, and only separated by

narrow ravines from the N.E. and N.W.; till it reached the neighborhood of Mount St. Anne, the last snow-capped mountain to the west, in about lat.  $52^{\circ} 18'$ , and 10 or 12 miles below the Forks

12

Here the river widens and becomes less rapid; 3 or 4 miles lower down, where a rocky rapid stream falls in from the N.W., the valley also widens somewhat; 8 or 9 miles below Mount St. Anne another rapid stream, 40 yards wide, falls in from the N.W., the valley widens still more, and the country opens generally, though the hills again close in towards the south; and 3 or 4 miles further, or about 16 miles in all, a third stream falls in from the N.W., named the Elsecar, 30 yards wide, clear and shallow, and consequently not fed by snows or glacier water; showing that the region where it takes its rise (probably to the N.W. of Mount St. Anne) must be less elevated. The valley also presents a tolerably level space. It is, therefore, more than probable that a pass to the west may be found somewhere near the second stream below Mount St. Anne, or at a distance from it, say of 12 miles.

12

Thus far the road is known, and may be considered practicable, though the hill-side cuttings and gradings along the Thompson and elsewhere would be numerous and expensive, as well as the bridges over the Fraser, Canoe river, and at the Forks. But the road now enters on an unexplored region; crossing a little south of west for 22 miles over an elevated divide to the Elsecar, and then probably over lower ground to the foot of Clearwater Lake, which stretches some thirty miles nearly due north. Beyond this it would cross a third, and still easier divide, to near the eastern end of Horsefly Lake, 18 or 20 miles further west, and about 2,100 feet above the sea. The road would ere this have left the mountains; the width across which from the Thompson would therefore not be more than 36 or 38 miles, and the total distance, sinuosities included, about

43

The line would then run for 22 miles nearly due west on the south side of the lake, and then follow the stream issuing from it, to its junction with the Horsefly river, near long.  $121^{\circ} 30'$ , lat  $52^{\circ} 25'$ . Distance in all

35

The road now enters on a country sufficiently known, and partially settled. Continuing nearly due west, it would cross a slightly rolling, fertile tract of country, for about 25 miles, to the divide near Round Tent Lake, about 125 feet above the Horsefly; and then proceed, with a nearly equal fall in the course of the next 10 miles, to Deep Creek, which it would follow in a varying westerly direction, and with a fall of about 600 feet in 9 miles, to its junction with the Fraser, 1,450 feet above the sea. Total distance, sinuosities included

47

256

Over.....256

The road would then cross the Fraser, and pass over the Chilcoaten plain in a W.S.W. direction, and with an ascent of about 900 feet, to the old Fort on the Chiscoe or Chilcoaten river. Distance

58

Thence it would run in the same direction, crossing the eastern or main branch of the Homatheco, to the "Gap" or entrance of the Bute Inlet valley, 2,520 feet above the sea.

47

Thence south, down the Bute Inlet valley to Waddington Harbor.

84

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Distance by proposed Short Cut..... Miles 445

#### RECAPITULATION.

	Miles.
From Montreal to Ottawa .....	115
„ Ottawa to the Mattawan .....	195
„ the Mattawan to Fort Garry .....	985
„ Fort Garry to the Yellow Head Pass .....	985
Thence to the Limit of British Columbia .....	52
	<hr/>
Route by the Upper Fraser (British Columbia) .....	570
Less distance by proposed Short Cut .....	125
	<hr/>
	445
	<hr/>
	2,467
Total length from Montreal to the Pacific .....	2,777

Against 3,305 miles, from New York to San Francisco, or 528 miles less.

The distances given in my pamphlet are greater than these. In the first place, because no allowance was made for the proposed short cut in British Columbia, which in all probability can be realised; and, secondly, because they were only roughly calculated and rather exaggerated.

The above distances may also be classed in three categories, as regards the nature of the soil and country traversed, viz. :—

1. Level, rich, arable country.
2. Rolling country, less fertile.
3. Poor, mountainous, and timbered.



SECTIONS OF COUNTRY.	1	2	3
	Level.	Rolling.	Poor.
	Miles.	Miles.	Miles.
Valley of the Ottawa .....		70	
Montreal Valley .....	69		30
Clay Level Country .....	250		
Lawrentides, north of Lake Superior .....	20	30	63
Neepigon and Black Sturgeon District .....	41	25	
Height of Land, to White Mouth River .....			335
Great Western Plain .....	1,012		
approach to Rocky Mountains ..		25	
Valley of the Assiniboine .....		30	
Rocky Mountains, to the Cache .....			80
Bald, or Gold Range beyond .....			116
Along Horsety Lake and River .....		20	15
Chilcoaten Plain .....	152		
Cascade Range (the Valley itself fertile) .....			84
	1,544	200	723

## RECAPITULATION.

	Miles.
Rich and Cultivable Territory .....	1,744
Grazing, Timbered, and Mountainous .....	723
	2,467

PROPOSED EXTENSION OF RAILWAY TO  
VANCOUVER ISLAND.

Since writing the above pamphlet, it has been ascertained, that by constructing suspension railroad bridges over the three straits, between the mainland and Stuart Island, Stuart and Valdes Islands, and Valdes and Vancouver Island, the railway can be eventually continued down the west side of Bute Inlet and across Vancouver Island, either to the head of Kyuquot Sound; or to Alberni Canal, at the head of Barclay Sound; or to Esquimalt Harbor, near Victoria. By this means all the inconveniences of an intermediate terminus, and the expense, trouble, and delays of transshipment across the Gulf of Georgia, which, as compared with San Francisco, would render the road practically useless for commercial purposes, are avoided; and, secondly (and this is more important in an Imperial point of view), a continuous and permanent communication with the mainland is established at a point offering the greatest strategetical security, and which would be impregnable; thus dispensing with the absolute necessity of passing before the disputed Island of San Juan, and very much diminishing the importance of that vexed

question. With such weighty motives to carry out the scheme, it becomes interesting to know what would be the probable outlay. The following approximate calculations show it to be enormous; such a considerable undertaking must, therefore, necessarily be deferred, though it points to the advisability of carrying the road to Bute Inlet, apart from other weighty considerations.

FROM WADDINGTON HARBOR TO VANCOUVER ISLAND.		Bridges.	Average Slope with Horizon.	Rock and Earth.	Solid Granite.
	Miles.	Deg.	Miles.	Miles.	
<i>Bute Inlet.</i>					
The road would start from Tobit Point, Waddington Harbor, and be carried down the west side of the Inlet, along the slope of the Mountains, some 40 or 50 feet above high tide.					
Around House Mountain .....		50	3		
South of House Mountain .....		45	5		
North Side of Bear Bay .....		55		0 $\frac{3}{4}$	
Embankment and Bridge in the Angle .....			0 $\frac{1}{4}$		
Bear Bay to Mellersh Point .....		60		5	
Mellersh Point to near Boyd Point .....		60		4	
From Boyd Point, South .....		45	3 $\frac{1}{4}$		
Further South to Alpha Bluff .....		55		4 $\frac{1}{2}$	
Alpha Bluff to Cosmos Height .....		55		6	
Cosmos Height to Amor Point .....		45	3		
South of Amor Point .....		45	2 $\frac{1}{4}$		
Embankment .....			0 $\frac{1}{4}$		
Thence to Inner Angle of the Shore .....		50	3 $\frac{1}{4}$		
Inner Angle to Foot of Mount Stokes .....		45	3 $\frac{1}{4}$		
Thence to Arrau Rapids .....		50	3 $\frac{1}{2}$		
Suspension Railroad Bridge, span 1,000 feet .....	1 5				
<i>Stuart Island.</i>					
From Arrau Rapids to Steep Point .....		45	2		
Steep Point to crossing of Caldero Channel .....		50	2		
Suspension Railroad Bridge, span, 2,000 feet .....	2 5				
<i>Valdes Island.*</i>					
Along the North Shore .....		45	3		
Across the Island to North-west foot of Mount Turnbull .....			2 $\frac{1}{4}$ (?)	2 (?)	
Along East foot of Mount Turnbull to Head of Camleon Harbor .....		45	3 $\frac{1}{4}$		
Thence due South to Arm of Sea .....			2 $\frac{1}{4}$ (?)	3 (?)	
Bridge and Embankment .....			0 $\frac{1}{2}$		
Thence to Deep Water Bay .....			3 (?)	3 (?)	
Deep Water Bay to Seymour Narrows .....		45	3 $\frac{1}{4}$		
Suspension Railroad Bridge, span, 2,200 feet .....	2 5				
* Valdes Island has never been explored.	1	.....	49	28 $\frac{1}{2}$	

## RECAPITULATION.

			£
Bridge over Arran Rapids .....	1,000 feet, say		250,000
„ Caldero Channel .....	2,000 „		675,000
„ Seymour Narrows .....	2,200 „		743,000
49 miles in the Rock and Earth, at £10,000 .....			490,000
28½ „ Solid Granite, at £12,000 .....			342,000
Total cost to Vancouver Island .....	Miles, 78½		2,500,000
<i>Branch to Kyuquot Sound.</i>			
From Seymour Narrows to Tahsish Arm, Kyuquot Sound .....	116½	at 10,000	1,165,000
	195		3,665,000
<i>Branch to Alberni Canal.</i>			
To Seymour Narrows, as above .....	78½		2,500,000
Thence to South Branch of Courtenay River .....	37½	„ 8,500	318,750
	116		2,818,750
Thence across the Island to Stamp Harbor, Alberni Canal .....	48	„ 10,000	480,000
	164		3,298,750
<i>Branch to Esquimalt Harbor.</i>			
To Courtenay River, as above .....	116		2,818,750
Thence to near Qualicum River .....	27	„ 8,500	229,500
Thence to Nanaimo .....	45	„ 8,500	382,500
From Nanaimo to Esquimalt .....	60	„ 8,500	510,000
	248		3,940,750

## COMPARATIVE EXPENSE OF EACH LINE.

	Miles.	£
To Tahsish Arm, Kyuquot Sound .....	195	3,665,000
To Stamp Harbor, Alberni Canal .....	164	3,298,750
To Esquimalt Harbor, Victoria .....	248	3,940,750

## APPENDIX.

### A.—CULMINATING POINTS ON THE LINE.

	Lat.	Long.	Alt.
North Angle of Montreal River .....	48°	81° 10'	830
Height of Land between Lakes Superior and Winnipeg .....	49° 20'	90° 40'	1,486
Leather or Yellow Head Pass .....	52° 54'	118° 33'	3,760
Pass across the Bald or Gold Range .....	52° 10'	120° 10'	3,000(3)
Summit of Chilcoaten Plain .....	51° 47'	121° 30'	2,520

### B.—PRINCIPAL STREAMS AND RIVERS.

Names.	Very Small.	Small.	Mid- dling.	Large.
Madawaska, at Arnprior .....			1	
Constant Creek, on the Ottawa .....	1			
Bonnechere, on the Ottawa .....			1	
Indian River, on the Ottawa, above Pembroke .....		1		
Petowawa, on the Ottawa .....			1	
Creek near Chalk Lake .....		1		
Mattawan .....			1	
Tributaries of the Ottawa .....	1	2		
Tributaries of Montreal River .....	2			
Montreal River (twice) .....			2	
Waratowaha, or South Branch of Abbitibi .....			1	
South Branch of Moose River .....			1	
Moose River .....			1	
Head of White, or Pike River(?) .....		1		
East Branch of Pie River .....		1		
Pie River .....			1	
Little Pie River .....		1		
Little Pie, Western Affluent .....		1		
Small Stream, no name .....	1			
Steel River .....		1		
Long Lake (Albany) .....			1	
Affluent of Trout Lake .....	1			
Black River .....	1			
Black River .....		1		
Pays Plat River .....		1		
Gravel River .....	1			
Cypress River .....	1			
Jack Fish River .....		1		
NEEPIGON .....				1
Black Sturgeon .....			1	
Little Black Sturgeon .....		1		
West Feeder to Neepigon Lake .....		1		
Small streams .....	2			
<i>Carried forward</i> .....	11	14	12	1

Names.	Very Small.	Small.	Mid- dling.	Large.
<i>Brought forward</i> .....	11	14	12	1
Canoe River .....			1	
White Fish River .....		1		
North Affluent of White Fish Bay .....		1		
WINNIPEG (as big as the Rhine) .....				1
Labarrière .....			1	
East Branch of White Mouth .....			1	
White Mouth .....		1		
Broken Head, East Branch .....			1	
" other branches .....		2		
German Creek (50 feet) .....	1			
RED RIVER (250 yards) .....				1
Sturgeon Creek .....		1		
Tributary of the Assiniboine .....	1			
Creek at Long Lake .....	1			
Rat River .....		1		
Tributary to White Mud River .....		1		
White Mud River .....			1	
Streams from Riding Mountains .....	3			
Rapid River .....			1	
Tributary to Rapid River .....		1		
Oak River .....		1		
Branches of Arrow River .....	2			
Head of Pine Creek .....	1			
" Bird Tail Creek .....	1			
Stream without a name .....	1			
Shell River .....			1	
Tributary of Assiniboine .....			1	
ASSINIBOINE (80 yards) .....				1
Tributary to Calling River .....	1			
Little White Sand River .....		1		
Tributaries to Last Mountain Lake .....		2		
SOUTH SASKATCHEWAN (180 yards) .....				1
Eagle Hill Creek .....			1	
Ear Hill Creek .....		1		
Creek at Head of Chain of Lakes .....	1			
Eye Hill Creek .....		1		
Nose Creek .....			1	
BATTLE RIVER .....				1
Long Lake Creek .....		1		
Smoking Wood Creek .....	1			
Pigeon Lake Creek .....	1			
Bull Lake Creek .....	1			
NORTH SASKATCHEWAN .....				1
Pembina .....			1	
McLeod .....			1	
Affluent of Athabasca (3 mouths) .....		3		
Creek from Small Lake .....	1			
ATHABASCA (200 yards) .....				1
Miette (30 yards) twice (?) .....		2		
Pipestone .....		1		
Moose River .....			1	
Grand Fork (5 mouths) .....		5		
Tributaries to Fraser .....	3	1		
UPPER FRASER .....				1
Cranberry .....		1		
Canoe River .....			1	
Stream from Alabreda Lake .....		1		
<i>Carried forward</i> .....	31	44	26	9

Names.	Very Small.	Small.	Mid-dling.	Large.
<i>Brought forward</i> .....	31	44	26	9
Tributaries to stream from Alabreda Lake...	5	1		
NORTH THOMPSON (one branch 60 yards)				1
Tributaries to North Thompson .....		2		
Head of Elsecar River .....		1		
Clearwater .....			1	
Horsefly .....			1	
Streams near Round Tent Lake .....	2			
FRASER (200 yards) .....				1
Chilcoat or Chiscoe .....			1	
Upper Homathco .....		1		
River above 4th Lake, Bute Inlet Valley. .	1			
" below 3rd " " .....		1		
" above 2nd " " .....		1		
" below 2nd " " .....		1		
" " the Cliff (3 times) " .....		3		
Stream from Upper Glacier .....		1		
River at opening of valley (twice) " .....			2	
Lake Creek " " .....		1		
River above Tiedemann's Glacier (twice) ..			2	
Stream from " " .....			1	
Creek below third Bluff .....	1			
Brown Creek .....	1			
HOMATHCO, at Ferry (70 yards) .....				1
Rock Creek .....		1		
Creek at Wig Camp .....	1			
" above Happy Valley .....	1			
" below " " .....	1			
Lower Glacier Stream .....		1		
Branches of Glacier Stream .....	6			
Stream lower down .....	1			
Creek above Henrietta's Landing .....	1			
Teaquahan .....	1			
	53	59	34	12

Total number 158, but the list of smaller streams is necessarily incomplete.